



# North Carolina Pest News

Departments of Entomology and Plant Pathology

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## CAUTION !

*The information and recommendations in this newsletter are applicable to North Carolina and may not apply in other areas.*

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## ANNOUNCEMENTS AND GENERAL INFORMATION

### **Final Issue of *North Carolina Pest News* for 2009**

This will be the final issue of the *North Carolina Pest News* for 2009. The editor would like to thank all of the Extension specialists and county agents and directors that contributed articles and/or insect trap data for the newsletter this season.

If you have any comments, criticisms or suggestions regarding the content or format of the newsletter, please take time to complete our online survey of *North Carolina Pest News* readers (see article below for instructions).

Thank you for your interest in the *North Carolina Pest News*. The newsletter will resume in April of 2010. Meanwhile, individual articles on insect and disease pests in North Carolina will be provided as *Pest Alerts* via electronic mail and the Internet at: [http://ipm.ncsu.edu/current\\_ipm/palert99.html](http://ipm.ncsu.edu/current_ipm/palert99.html).

### **Reminder of Online Survey of *North Carolina Pest News* Readers**

If you have already completed the online survey of *North Carolina Pest News* readers regarding the use and usefulness of the newsletter, then please accept our appreciation.

If you have not taken the opportunity to complete the survey, please take a few minutes to do so. The editor and authors of the *North Carolina Pest News* plan to use the information collected through the survey to document the usefulness of the newsletter to our readers and improve its quality in the future. The information collected from the survey is anonymous and confidential. You only need to complete the survey one time.

To complete the online survey, go to the following web page: [http://www.ipmpipe.org/survey\\_ncpn/](http://www.ipmpipe.org/survey_ncpn/)

Enter the following password: pestnews

Click on the login button.

Once you have accessed the online survey questionnaire, please enter your answers to each question. You can change your answers by clicking on another selection. Once you have entered and are satisfied with your answers to the survey questions, click on the "Submit" button at the end of the questionnaire. Once you have clicked on the "Submit" button, your answers will be entered into a database with the answers of others that have completed the survey.

You can complete the survey online until Wednesday, September 30, when the site will be taken offline. Again, you only need to complete the survey one time.

<p>See current and archived issues of the <i>North Carolina Pest News</i> on the Internet at: <a href="http://ipm.ncsu.edu/current_ipm/pest_news.html">http://ipm.ncsu.edu/current_ipm/pest_news.html</a></p>
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## FIELD AND FORAGE CROPS

From: Jack Bacheler, Extension Entomologist

### **Cotton Insects: Present Outlook and Summary**

It looks like cotton insect pests are down for the count for the remainder of the 2009 season. We looked at 26 cotton fields in Northampton County on Wednesday, September 9. These fields represented a range of maturity. We didn't find the first bollworm or fall armyworm. Even stink bugs were very scarce, although present in moderate to high number in a few adjacent soybean fields.

Although we appeared to have come through a higher than normal stink bug year on cotton, bollworms were about average for some and very low for other producers this year. We had a few scattered cases of "less than expected" control of bollworms with pyrethroid insecticides this season, suggesting some increased tolerance to this class of chemicals by bollworms. However, we have had difficulty in confirming an upward trend in tolerance or resistance from year to year. If affordable, some new insecticides, such as Coragen and Belt, provide excellent control of bollworms.

On a related subject, remember that time is running out for Bollgard cotton varieties unless seed has been purchased for the 2010 growing season. I would expect that essentially all of next year's cotton will be either Bollgard II or Widestrike, with the possible exception of a few acres of conventional non-Bt cotton. In our annual damaged boll survey, both BGII and WideStrike cotton lines have produced less than one half of 1% bollworm-damaged bolls under grower conditions averaged over the past 5 years. So unless or until bollworm resistance develops to these new technologies, bollworm damage to cotton can be expected to be very low in the coming years, and stink bug management will increasingly become the major insect focus of North Carolina producers along with thrips in most years.

At this coming year's winter grower meetings, we'll cover practical ways to use the new dynamics threshold for managing stink bugs, the role of planting dates to help in managing thrips, getting the most out of new Bt cotton technologies, the status of secondary cotton pests, and how to judge when protection from late season insect damage is no longer needed. I hope to see you at one of these meetings.

### **Meet Dominic Reisig, New Extension Entomologist for Field Crops**

Dr. Dominic Reisig, from the University of California at Davis, was hired by North Carolina State University on August 31 to assume the responsibilities formerly held by Dr. John Van Duyn at the Vernon James Center in Plymouth, North Carolina. Dominic will have the major statewide responsibility for insect integrated pest management (IPM) in wheat, field corn and soybeans, as well as cotton responsibility in the Northeast region of North Carolina. I will have a secondary supportive role for wheat field, field corn and soybeans in the Piedmont and mountains and the major statewide responsibility for cotton. I hope you will take the opportunity to meet Dominic in the coming weeks and months. Dominic can be reached by e-mail at [dominic\\_reisig@ncsu.edu](mailto:dominic_reisig@ncsu.edu) or by telephone at 252-793-4428 (ext. 133).

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From Jim Dunphy, Extension Crop Science Specialist, and Steve Koenning, Extension Plant Pathologist

### **Soybean Rust Update: September 10, 2009**

Asiatic soybean rust was confirmed yesterday on soybeans in Dorchester County, South Carolina, and in St. Clair County, Alabama. The Dorchester County site is about the same distance from Charlotte as the previously announced Berkeley County, South Carolina site, at 145 miles. It is a little farther from the other 7 cities we're tracking than the Berkeley County site. The Berkeley County site is approximately 145 miles from Charlotte, 305 miles from Elizabeth City, 145 miles from Fayetteville, 260 miles from Murphy, 195 miles from Raleigh, 240 miles from Washington, 145 miles from Wilmington, and 200 miles from Winston-Salem, North Carolina. The closest rust to Murphy, North Carolina is now St. Clair County, Alabama, which is approximately 160 miles away.

Rust has now been confirmed on soybeans in Alabama, Arkansas, Florida, Georgia, Louisiana, Mississippi and Tennessee. The other counties announced in the past week to have rust on soybeans are all farther away from our North Carolina soybeans than the sites mentioned in the paragraph above.

We do not consider this find to pose any imminent threat to our North Carolina soybeans yet. North Carolina farmers should continue to check their soybeans that do not have full sized beans in the top of the plants, and to continue to monitor reliable reports of where rust has been found. An up-to-date map of where rust has been found is available on the Internet at <http://www.sbrusa.net>. The current version of these North Carolina updates should also be available from our Teletip line at 800/662-7301.

## **FRUIT AND VEGETABLES**

From: Mark Abney, Extension Entomologist

### **Caterpillar Pests in Fall Veggies**

As summer winds down, growers should continue to be on the lookout for insect pests in fall vegetable crops. Brassicas will be an attractive host for a variety of caterpillars in late summer including armyworms, loopers and diamondback moths, and we are seeing all three in broccoli trials near Clinton, North Carolina. We are also continuing to see pickleworm and corn earworm larvae in summer squash trials in Sampson County. Fortunately, several of the newer insecticides provide very good control of caterpillars on brassicas and cucurbits with minimal disruption of natural enemies (see the North Carolina Agricultural Chemicals Manual at <http://ipm.ncsu.edu/agchem/5-toc.pdf> for a complete listing of recommended insecticides). Careful scouting and proper insecticide application timing will help prevent losses to these insects in fall vegetables.

### **Corn Earworm Damage to Sweet Corn in 2009**

There has been much discussion lately about pyrethroid insecticide resistance in populations of corn earworm (Fig. 1) in the Southeast. In research trials this summer near Clayton, North Carolina, significant ear damage (greater than 30% of harvested ears were infested) was observed in sweet corn

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plots treated with a pyrethroid on a 2 to 3 day spray schedule. Applications began at silk emergence and continued until harvest. We are interested in learning if corn earworm control problems were experienced by commercial producers of conventional (non-Bt) sweet corn in North Carolina in 2009. I would like to hear from Extension agents and consultants regarding their experiences with corn earworm management in sweet corn this season. Important information to include is: county where the field(s) was located, planting date, insecticide(s) used, number and schedule of insecticide applications, and severity of infestation. Clearly pyrethroids do not provide the level of corn earworm control that they once did. Fortunately, transgenic cotton and sweet corn varieties that produce Bt toxins continue to provide good control of this pest. Nevertheless, it is important to know the status of pyrethroid susceptibility in corn earworm populations. If you are willing to share your experiences managing corn earworm in sweet corn in 2009, please contact me by e-mail at [mark\\_abney@ncsu.edu](mailto:mark_abney@ncsu.edu).



Fig. 1. Corn earworm feeding on sweet corn. Image from Mark Abney.

### White Grubs in Sweetpotatoes: Your Help is Needed

A new insect pest of sweetpotato in North Carolina is causing significant losses to producers in and around Columbus County. The insect is an exotic white grub called *Plectris aliena* (Fig. 2). Though similar in appearance to the white grubs that sweetpotato growers may have seen in the past, *Plectris aliena* is an introduced species originally from South America that is capable of causing severe damage (Fig. 3) over a large area. It is not known how the *Plectris* grub was introduced into North Carolina nor is it known whether the insect can survive in areas outside the extreme southern parts of the state. Studies are underway to determine the current geographic range of the pest within North Carolina and to determine its potential for spread. We are encouraging sweetpotato growers across the state to collect any white grubs they find during harvest this season and send them to Raleigh for identification. The information gathered from these collections will help us learn more about the insect's biology and ultimately help in the development of control strategies. The best way to preserve and ship grubs is in a

solution of 70% ethyl (grain) alcohol / 30% water. Alternatively, live grubs may be placed in a container filled with soil. Live grubs need to be handled carefully and shipped quickly; dead grubs that are not preserved in alcohol decay rapidly and are difficult or impossible to identify. Your help informing growers of this project is greatly appreciated. If you have any questions or comments, please contact Mark Abney at the number or email address provided below.

Grub samples should include the following information:

- location and date of collection
- grower/agent contact information
- soil type (if known)
- whether or not damage was observed on sweetpotato roots
- severity of damage (percent of roots affected)

Samples can be sent to:

Dr. Mark R. Abney  
Department of Entomology  
Campus Box 7613  
North Carolina State University  
Raleigh, NC 27695  
E-mail: [mark\\_abney@ncsu.edu](mailto:mark_abney@ncsu.edu)  
Office telephone: 919-515-2745



Fig. 2. Third instar *P. aliena* grub. Image from Mark Abney.



Fig. 3. *P. aliena* damaged sweetpotatoes. Image from Mark Abney.

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## ORNAMENTALS AND TURF

From: Steve Bambara, Extension Entomologist

### Twolined Spittlebugs

I've observed a lot of twolined spittlebug adults active in turf. I've also observed a little feeding damage on holly. Twolined spittlebugs are small (1/4 inch in length), dark-colored insects that resemble overgrown leafhoppers (Fig. 4). As these small insects fly, the dark red abdomen shows conspicuously. In late summer and early fall, the adult twolined spittlebugs fly to hollies (and other plants) to feed. Feeding damage appears as splotchy areas on the underside leaf tissue. There are no holes in the leaves. Damage causes hollies to become splotchy and yellow and cause the leaves to drop prematurely. Unfortunately, most of the damage is starting now, but the symptoms will not be noticed until later. Not all hollies are affected severely, and not every year.



Fig. 4. Twolined spittlebug adult. Image by James R. Baker.

Female twolined spittlebugs lay their eggs in turf grasses. The eggs are inserted into the plant stem or between the stem and leaf sheath. When the nymphs hatch from their eggs, they begin to feed. Spittlebugs suck sap from the plants with their needle-like mouthparts. As the nymphs feed, they excrete the spittle which protects them from predaceous mites and insects. Because spittlebugs feed on turf grasses near the soil, their numbers may be high without being noticeable. Only after the adults emerge is the seriousness of an infestation realized. Fortunately, they infrequently require treatment in turf. In holly, a garden spray containing acephate (Orthene) or a pyrethroid insecticide may be used for twolined spittlebug management on hollies if the problem is serious. Treat the undersides of leaves. In most cases, plants are not threatened to the point of requiring chemical control. *Ornamentals and Turf Insect Information Note No. 97* explains the biology of twolined spittlebugs and links to a list of *Ilex* species and turf less susceptible (<http://www.ces.ncsu.edu/depts/ent/notes/O&T/lawn/note97/note97.html>).

### Yellowjacket Populations Up

Yellowjacket populations have been building all summer. Some of you undoubtedly have learned this the hard way. As the days become shorter, populations peak and males are more numerous. What is also more common seems to be the scavenging for "carbs." A big complaint at this time of year is often yellowjacket visitation at open trash cans and dumpsters. There is no good cure for this situation. Traps are not control devices. Exclusion is the best tactic. Keep lids on, trash emptied, picnic food covered and trash can liners changed. Be sure to look in an unattended can of soft drink outdoors before sipping. Rinsing out trash cans and adding pine oil cleanser may possibly reduce visitation by yellowjackets.

The only sure control is locating and destroying the nest. This is very difficult and almost impossible for the untrained. If found, the nest can be destroyed with an aerosol hornet and wasp spray. Do not pour gasoline down the hole (you heard me correctly). For more details on treating for yellowjackets, see <http://www.ces.ncsu.edu/depts/ent/notes/Urban/horn-yj.htm>.

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### Fall For Fire Ants

The fall bump of fire ant activity should begin soon. Mounds and telephone calls may start appearing. I think you've heard most of the recommendations before. The key to success is adhering to the recommendations. There are volumes of information about fire ants in different settings. Most homeowners only want to know the answer to one question. "What can I use to get rid of \_\_\_\_\_ (them)?" The answer isn't short, but I compiled a brief note for homeowners available on the web at <http://www.ces.ncsu.edu/depts/ent/notes/O&T/lawn/note145/note145.html>. Also, don't forget to watch the Quicktime movie at [http://www.ces.ncsu.edu/depts/ent/notes/Urban/video/controlling\\_fireants.mov](http://www.ces.ncsu.edu/depts/ent/notes/Urban/video/controlling_fireants.mov).

From: Steve Frank, Extension Entomologist

### Fall Pests to Look Out For

As the weather cools down, the most important pest to look out for are cool season mites. You will recall I mentioned spruce spider mites and southern red mites back in the spring. These are two of the most destructive nursery pests. Partly this is due to biology since they reproduce so quickly. However, it is also due to their habit of feeding in spring and fall when perhaps people are not looking for them. The other concern with these mites, and why it is important to monitor before you see damage, is that they feed on evergreen plants. Thus, any damage caused will not go away to be replaced with a new flush of leaves. For more information on managing these pests, see *Ornamentals and Turf Insect Note No. 77* at <http://www.ces.ncsu.edu/depts/ent/notes/O&T/trees/ort077e/ort077e.htm>.

White peach scales have three generations per year, one of which produces crawlers in the fall. Look for crawlers on plants you know have scales and spray them with oil if crawlers are present. Watch for this scale on *Prunus* species although it is quite generalist and will infest other plants such as privet, lilac, chinaberry, hibiscus, redbud, spirea, dogwood, and others.

### Fall Cleanup of Nursery Pests

Many armored scales and other insects (such as mites) that overwinter in nurseries can be killed with a dormant oil spray. Oil kills insects by covering their breathing tubes and essentially smothering them. Oils also disrupt the cuticle and have other properties we do not understand. Regardless, they are a product with low toxicity that can help reduce spring pest problems. More information on horticultural oils can be found on the Internet at <http://www.ces.ncsu.edu/depts/ent/notes/Other/not45.html>.

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## INSECT TRAP DATA

From: Richard W. Rhodes, County Extension Director, Bertie County

### Light Trap Data from Bertie County

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*****
                Windsor      Woodard      Hexlena      Roxobel      Colerain
                *****      *****      *****      *****      *****
Date           Moths  GSB   Moths  GSB   Moths  GSB   Moths  GSB   Moths  GSB
*****
July 22        -    -     -    -     -    -     -    -     -    -
July 23        -    -     -    -     0    0     3    2     -    -
July 24        -    -     -    -     -    -     -    -     -    -
July 25        12   0     -    -     -    -     -    -     -    -
July 26        35   0     -    -     -    -     -    -     -    -
July 27       100   0     -    -     8    0    10   0     -    -
July 28        46   0     -    -     6    0     4    0    81   0
July 29       107   0    16   1     4    0     3    0   160   0
July 30        96   0    10   2    16   5    16   0    59   0
July 31        76   2    12   0    11   5    27   0   215   1
August 1        -    -    25   3     7    0     -    -     -    -
August 2        -    -    12   1     -    -     -    -     -    -
August 3       45   0    24   2    30   0   115   1   356   0
August 4       18   0    23   1     6    0    30   1    80   0
August 5       15   0    12   2    11   0    32   1    36   0
August 6       10   0    27   0     8    0    42   0    52   0
August 7        6   1     -    -     7    0    27   0    18   0
August 8        -    -    22   1     -    -     -    -     -    -
August 9       75   3    19   0     -    -     -    -     -    -
August 10      45   8    27   1     -    -    85   5   168   2
August 11      62   3    27   1     7    0    37   2   118   7
August 12      79   1    25   1    12   4     1    0    45   7
August 13      36   1     -    -     -    -    58   0    41   1
August 14      53   4    62   7     3    1     -    -    50   7
August 15        -    -    65   4     -    -    49   3     -    -
August 16        -    -    30   6     -    -     -    -     -    -
August 17      19   1    18   6    20   9    68   5     -    7
August 18        -    -    59   9     -    -     -    -    77   9
August 19        -    -    12   1     -    -     7    4    28   0
August 20      21  12    14   4    10   5    20   2     -    -
August 21      75  14     -    -     -    -    16   2    27   3
August 22      34   8     -    -     -    -     -    -     -    -
August 23      12   7     -    -     -    -     -    -     -    -
August 24        6   5     -    -     -    -     -    -    25   2
August 25      21   5    26  10     -    -     -    -     -    -
August 26      46  11    19   9     -    -     7    0     -    -
August 27      48   8    18   4     -    -     -    -     -    -
August 28      65   1    46   7     -    -     -    -     -    -
August 29        -    -    34   4     -    -     -    -    11   0
August 30      74   7    14   0     -    -     -    -     -    -
August 31      54   3    22   3     -    -     -    -    31   2
September 1    30   0    15   1     -    -     -    -     -    -
September 2        -    -     8   0     -    -    25   0     -    -
September 3        -    -     -    -     -    -     -    -     -    -
September 4        -    -     -    -     -    -     -    -     -    -
    
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September 5	-	-	-	-	-	-	-	-	-	-
September 6	-	-	-	-	-	-	-	-	-	-
September 7	61	2	22	7	-	-	-	-	-	-

Moths = Bollworm moths; GSB = Green stink bugs

From: Mike Carroll, Agricultural Extension Agent, Craven County

**Light Trap Data from Craven County**

\*\*\*\*\*  
Number of Adult Insects  
\*\*\*\*\*

Date	THW	TBW	CEW	GSB	BSB	ECB	FAW	BAW	Looper
July 10	-	2	2	-	-	-	-	-	-
July 13	0	1	15	1	-	-	-	-	-
July 20	8	3	80	3	-	-	-	-	-
July 22	3	1	47	-	-	-	1	-	-
July 24	2	-	37	1	-	7	-	-	-
July 27	2	-	72	10	-	-	8	-	-
July 29	3	-	82	-	-	-	4	-	-
July 31	-	1	134	3	-	-	2	-	-
August 3	1	1	133	1	-	-	2	-	-
August 5	-	1	53	3	-	-	-	-	-
August 7	-	-	53	-	-	-	1	-	-
August 10	-	-	196	5	-	-	1	-	-
August 12	1	-	68	3	-	-	2	-	-
August 14	2	-	193	-	-	-	2	-	-
August 17	3	-	83	6	3	-	1	-	-
August 19	1	1	53	-	-	-	-	-	-
August 21	-	-	-	-	-	-	-	-	-
August 24	2	-	116	4	-	-	4	-	-
August 26	2	-	73	1	-	-	-	-	-
August 28	3	-	37	-	1	-	-	-	-

\*\*\*\*\*

THW = tobacco hornworms; TBW = tobacco budworms; CEW = corn earworms;  
GSB = green stink bugs; BSB = brown stink bugs; ECB = European corn  
borers; FAW = fall armyworms; BAW = beet armyworms

Location of trap: Cove City  
Cooperators: Cove City Fertilizer

From: Curtis D. Fountain, Agricultural Extension Agent, Duplin County

**Light Trap Data from Duplin County**

```

*****
                        Number of Adult Insects
*****
Date          BW          GSB          BSB
*****
July 6        -           -           -
July 8        -           -           -
July 10       -           -           -
July 13       -           -           -
July 15       0           4           0
July 17      10          13          0
July 20      15          32          0
July 22      31           2           0
July 24      22          15          0
July 27      74          37          0
July 29      62           9           1
July 31      37           7           0
August 3     98           4           2
August 5     16           0           3
August 7     18           1           2
August 10    18           5           3
August 12    13           5           2
August 14    87          20          0
August 17    41           7           4
August 19    46           4           0
August 21    50           7           0
August 24   150           4           0
August 26    92           2           0
*****

```

BW = cotton bollworms; GSB = green stink bugs; BSB = brown stink bugs

Trap location: approximately two miles east of Albertson  
Cooperator: Justin Murphy

From: Arthur R. Bradley, Jr., County Extension Director, Edgecombe County

**Light Trap Data from Edgecombe County**

```

*****
                        Number of Adult Insects
*****
                        Coakley          West Edgecombe          Lawrence
*****
Date          CEW  BS  GS    CEW  BS  GS    CEW  BS  GS
*****
July 17      15  -  3     -  -  -     -  -  -
July 20      10  -  4     -  -  -     -  -  -
July 22      18  1  3     -  -  -     -  -  -

```

July 24	14	-	4	-	-	-	5	-	20
July 27	45	-	3	-	-	-	30	0	7
July 29	36	-	0	-	-	-	35	0	3
July 31	57	-	2	-	-	-	7	0	2
August 3	33	-	4	-	-	-	11	0	2
August 5	14	1	0	-	-	-	1	0	2
August 7	12	0	0	-	-	-	2	0	0
August 10	47	0	0	-	-	-	40	0	3
August 12	31	0	2	-	-	-	5	0	0
August 14	19	0	0	-	-	-	4	0	0
August 17	21	0	0	-	-	-	5	0	5
August 19	20	0	5	-	-	-	10	0	1
August 21	22	0	1	-	-	-	8	0	4
August 24	14	0	1	-	-	-	-	-	-
August 26	26	0	0	-	-	-	5	0	4
August 28	59	0	4	-	-	-	3	0	1
August 31	-	-	-	-	-	-	7	0	3

\*\*\*\*\*

Abbreviations: CEW = corn earworms;  
 BS = brown stink bugs; GS = green stinks bugs

From: Paul Smith, Agricultural Extension Agent, Gates County

**Light Trap Data from Gates County**

\*\*\*\*\*

Date	Bollworm moths
July 25	1
July 26	2
July 27	9
July 28	3
July 29	7
July 30	8
July 31	19
August 1	11
August 2	9
August 3	14
August 4	60
August 5	18
August 6	30
August 7	7
August 8	4
August 9	2
August 10	18
August 11	2
August 12	14
August 13	-
August 14	20
August 15	41
August 16	5
August 17	14
August 18	24
August 19	35

August 20 16  
\*\*\*\*\*

Cooperator: Dennis Riddick

From: Keith B. Walters, County Extension Director, Hoke County

**Light Trap Data from Hoke County**

```
*****
Date      Moths      GSB      BSB
*****
July 8      5          10       -
July 10     5          4        -
July 13     4          1        -
July 15     4          5        -
July 17     5          4        -
July 20     4          7        -
July 22     3          6        -
July 24     7          6        -
July 27     28         6        -
July 29     100        9        -
July 31     51         1        -
August 3    162        1        -
August 5    20         1        -
August 7    32         3        -
August 10   48         2        -
August 12   29         1        -
August 14   29         1        1
August 17   43         3        1
August 19   25         4        -
August 21   33         2        -
August 24   97         9        -
August 26   40         5        -
August 28   44         5        -
August 31   86         6        -
September 2 46         0        -
September 4 28         0        -
*****
```

GSB = green stink bugs; BSB = brown stink bugs

Location of trap is Chisholm Road, Raeford.  
Trap monitored by Earl Hendrix.

From: Alan A. Harper, Lenoir County

**Light Trap Data from Lenoir County**

June

```

*****
                        Number of Adult Insects
*****
Date      HW      CEW      ECB      AW      AWC      GSB      BSB      TBW
*****
June 10   1       0       1       0       0       0       0       0
June 11   1       0       0       0       0       3       2       0
June 12   1       0       0       0       0       2       0       0
June 13   1       3       0       0       1       16      2       0
June 14   1       1       0       0       0       8       13      1
June 15   0       3       0       0       5       38      1       0
June 16   1       4       1       0       1       4       0       0
June 17   1       3       0       0       1       3       0       0
June 18   0       2       0       1       0       4       1       0
June 19   0       0       0       0       0       24      4       0
June 20   0       4       0       0       1       14      19      0
June 21   0       7       0       0       3       5       14      1
June 22   0       5       0       1       4       1       5       0
June 23   0       6       0       0       1       1       2       0
June 24   1       3       0       0       3       4       0       0
June 25   0       4       1       0       8       1       1       0
June 26   1       1       0       1       9       16      1       0
June 27   0       1       0       0       4       9       2       0
June 28   0       2       0       1       1       6       1       2
June 29   0       1       0       0       1       7       3       0
June 30   0       1       0       0       1       0       1       0
*****

```

July

```

*****
                        Number of Adult Insects
*****
Date      HW      CEW      ECB      AW      AWC      GSB      BSB      TBW
*****
July 1    0       1       0       0       1       3       0       0
July 2    1       2       0       0       2       5       1       0
July 3    0       1       0       0       4       1       0       0
July 4    0       2       0       0       5       0       0       0
July 5    0       2       0       0       3       0       0       0
July 6    0       0       0       0       0       1       2       0
July 7    0       1       0       0       1       5       0       0
July 8    0       0       0       0       0       3       0       0
July 9    0       2       0       1       2       5       0       0
July 10   0       2       0       0       1       3       0       0
July 11   0       2       0       0       4       6       0       0
July 12   1       0       0       0       6       2       0       0
July 13   0       0       0       0       3       2       0       0
July 14   0       1       0       0       2       0       0       0
July 15   1       4       0       0       7       6       0       0

```

July 16	1	8	0	0	4	3	0	0
July 17	0	5	1	0	3	1	0	0
July 18	0	6	1	0	1	2	0	0
July 19	0	26	6	1	6	3	1	0
July 20	1	31	6	0	2	4	0	1
July 21	2	22	0	0	5	4	0	0
July 22	1	70	1	0	2	2	0	0
July 23	0	61	3	0	5	12	1	0
July 24	0	41	2	1	5	1	0	1
July 25	1	62	1	0	5	6	0	0
July 26	0	67	2	0	6	3	0	3
July 27	0	40	0	0	7	4	0	0
July 28	1	80	2	0	1	1	0	1
July 29	0	70	0	0	3	5	0	0
July 30	0	49	2	0	1	0	0	1
July 31	0	31	0	0	2	2	0	0

\*\*\*\*\*

August

\*\*\*\*\*

Number of Adult Insects

\*\*\*\*\*

Date	HW	CEW	ECB	AW	AWC	GSB	BSB	TBW
August 1	----- unplugged -----							
August 2	0	41	0	0	3	2	0	1
August 3	1	38	1	0	2	3	0	0
August 4	0	29	1	0	5	2	0	0
August 5	0	28	0	0	2	3	0	0
August 6	0	34	2	0	1	4	0	0
August 7	0	28	0	0	1	4	0	0
August 8	0	24	0	0	2	3	0	0
August 9	0	5	2	0	0	2	0	0
August 10	0	8	0	0	0	0	0	0
August 11	0	6	1	0	2	1	0	0
August 12	0	6	1	0	0	0	0	0
August 13	0	24	0	0	0	2	0	0
August 14	0	22	5	0	0	0	0	0
August 15	0	17	1	0	1	2	0	0
August 16	0	9	2	0	5	0	0	1
August 17	0	11	1	0	2	2	0	0
August 18	0	5	1	0	1	2	0	0
August 19	0	10	2	0	1	3	0	1
August 20	0	16	4	0	2	3	0	3
August 21	0	21	13	1	1	1	0	1
August 22	2	31	2	1	2	2	0	0
August 23	2	18	3	0	0	1	0	0
August 24	0	27	4	1	1	0	0	0
August 25	2	36	3	0	1	1	0	0
August 26	0	35	4	1	1	0	0	0
August 27	1	51	9	1	1	2	0	0
August 28	0	49	13	2	2	0	0	0
August 29	3	45	19	0	3	1	0	1
August 30	0	23	2	0	1	0	0	0
August 31	2	30	0	0	3	2	0	1

\*\*\*\*\*

September

```

*****
                          Number of Adult Insects
*****
Date      HW      CEW      ECB      AW      AWC      GSB      BSB      TBW
*****
September 1  2      14      8       1       3       0       1       2
September 2  0      14      7       0       3       0       0       1
September 3  0      20     13       0       8       0       0       1
September 4  0      24      9       0       3       0       0       2
September 5  0      10      4       0       3       0       0       0
September 6  0       4       1       0       2       0       0       0
September 7  0      20      5       0       2       0       0       0
September 8  0      27      8       0       4       0       0       0
September 9  1      11      8       0       0       0       0       0
September 10 0      10      5       0       2       0       0       0
*****
    
```

Abbreviations: HW = hornworms; CEW = corn earworms; ECB = European corn borers; AW = true armyworms; AWC = armyworm complex; GSB = green stink bugs; BSB = brown stink bugs; TBW = tobacco budworms

From: J. B. Coltrain, County Extension Director, Martin County

**Light Trap Data from Martin County**

```

*****
                          Robersonville      Farm Life
*****
Date      BW      GSB      BW      GSB
*****
July 20      5       0       3       2
July 22      4       0       6       1
July 24      3       0       5       7
July 27     14       3       8       3
July 29     34       2      14       0
July 31     14       0     19       0
August 3     42       1    126       4
August 5     16       2     26       2
August 7      4       0       7       0
August 10    39       0     32       2
August 12    44       0     27       2
August 14    34       0     44       0
August 17    55       1     47       1
August 19    51       1     37       1
August 21    50       1     13       2
August 24    26       5     20       0
August 26    18       0     31       1
August 28    13       0     17       2
August 31    21       0    104       3
September 2  19       0     23       0
September 4   9       1       9       0
*****
    
```

BW = Bollworm moths; GSB = Green stink bugs

From: Craig Ellison, Agricultural Extension Agent, Northampton County

**Light Trap Data from Northampton County**

```

*****
                        Number of Adult Insects
*****
      Woodland      Conway      Galatia      Seaboard      Gaston      Jackson
*****      *****      *****      *****      *****      *****
Date      CEW GR BR      CEW GR BR      CEW GR BR      CEW GR BR      CEW GR BR      CEW GR BR
*****
July 24      1 0 0      - - -      1 6 0      - - -      - - -      10 4 0
July 27      1 9 0      - - -      6 21 0      9 6 0      - - -      87 41 2
July 29      2 2 0      - - -      8 16 0      14 0 1      - - -      121 11 0
July 31      6 1 0      - - -      14 21 0      - - -      - - -      - - -
Aug. 3       7 0 0      9 0 0      71 15 1      16 4 0      - - -      392 21 2
Aug. 5       7 1 -      20 2 1      14 2 1      25 0 0      - - -      72 7 3
Aug. 7       8 1 0      18 8 0      19 1 0      - - -      6 2 0      - - -
Aug. 10      11 1 0      22 8 0      67 4 0      21 5 0      - - -      158 20 1
Aug. 12      - - -      16 11 3      35 26 2      21 84 0      62 0 0      119 27 2
Aug. 14      13 0 0      21 9 0      40 21 0      - - -      16 0 0      - - -
Aug. 17      29 0 0      15 6 0      70 10 0      36 5 0      12 0 0      55 11 0
Aug. 19      7 0 0      18 8 0      43 17 0      12 0 0      3 0 0      127 25 0
Aug. 21      30 3 0      - - -      60 18 0      - - -      - - -      195 37 1
Aug. 24      14 4 0      8 20 0      54 51 0      - - -      - - -      - - -
Aug. 26      4 0 0      21 8 0      13 13 0      - - -      46 0 0      67 8 0
Aug. 28      20 3 0      - - -      35 10 0      36 7 0      2 0 0      78 30 1
Aug. 31      25 3 0      - - -      84 25 0      - - -      - - -      110 13 0
Sept. 2      10 0 0      - - -      - - -      6 0 0      - - -      46 0 0
Sept. 4      5 0 0      - - -      6 0 0      - - -      - - -      - - -
*****
    
```

CEW = corn earworms; GR = green stink bugs; BR = brown stink bugs

Locations: Woodland, Conway, Galatia, Seaboard, Gaston and Jackson  
 Monitored by: L. Culpepper, K. Edwards, B. Harris, T. Flythe,  
 D. Grant and B. Bryant

From: Melissa Evans, Agricultural Extension Agent, Onslow County

**Light Trap Data from Onslow County**

```

*****
                        Number of Adult Insects
*****
Date      Bollworms      GSB      BSB      Hornworms
*****
June 24      -      -      -      -
June 26      2      10      0      0
June 29      7      5      0      0
July 1       -      -      -      -
    
```

July 3	-	-	-	-
July 6	-	-	-	-
July 8	-	-	-	-
July 10	-	-	-	-
July 13	-	-	-	-
July 15	-	-	-	-
July 17	21	10	-	-
July 20	30	12	-	-
July 22	45	3	-	-
July 24	80	3	-	-
July 27	105	5	-	-
July 29	100	0	-	-
July 31	146	5	-	-
August 3	215	15	-	-
August 5	148	7	-	-
August 7	80	1	-	-
August 10	120	8	-	-
August 12	40	5	-	-

\*\*\*\*\*  
 GSB = green stinks bugs; BSB = brown stink bugs

Trap Location: Richlands; Cooperator: Richlands Farms  
 Insect counts are from a single black light trap  
 located approximately 1 mile east of Richlands.

From: Everett Davis, County Extension Director, Robeson County

**Light Trap Data from Robeson County**

\*\*\*\*\*

Date	Number of Adult Insects			
	BW	GSB	BSB	FAW
July 16	9	-	-	-
July 17	13	-	-	-
July 18-19	34	-	-	-
July 20	32	4	-	-
July 21	29	3	-	-
July 22	31	-	-	-
July 23	24	4	-	-
July 24	17	-	-	-
July 25-26	49	-	-	-
July 27	29	-	-	-
July 28	19	0	0	0
July 29	16	2	0	-
July 30	18	1	0	0

\*\*\*\*\*

BW = bollworms; GSB = green stick bugs;  
 BSB = brown stink bugs; FAW = fall armyworms

Trap location: Rowland; Cooperator: Kay McGirt

From: David E. Morrison, Agricultural Extension Agent, Scotland County

**Light Trap Data from Scotland County**

```

*****
                          Number of Adult Insects
*****
          Gibson                John's                Laurinburg
*****                *****                *****
Date      BW  GSB  BSB  FAW      BW  GSB  BSB  FAW      BW  GSB  BSB  FAW
*****
July 10   7   10   -   -        3   3   -   -        5   1   -   -
July 13  27   33   -   -        7   9   1   -        2   0   -   -
July 15  16   11   1   -       35   1   -   -       17   1   -   -
July 17  14   21   -   -        -   -   -   -       17   1   -   -
July 20  23   22   -   -       23   6   -   -       72   2   -   -
July 22  25    9   -   -       49   4   -   -       78   3   -   -
July 24  66   24   -   -      247  18   1   -      153  15   -   -
July 27 176   21   -   -      718  18   4   -      436   9   -   -
July 29  98   19   3   -      338   1   4   -      343   7   -   -
July 31  77    7   -   -        -   -   -   -      101   1   -   -
Aug.  3   72   24   -   -      462  34   2   -      187   2   -   -
Aug.  5  101    8   4   -      117   8   1   -      205   3   -   -
Aug.  7   44    4   -   -      138   9   -   -      201   3   -   -
Aug. 10  103    8   -   -      228  17   -   -      326   4   -   -
Aug. 12  143    4   -   -      134  18   1   -      225   2   -   -
Aug. 14  111    3   -   -      101   1   -   -      136   1   -   -
Aug. 17  108    6   -   -      266   7   -   -      187   6   -   -
Aug. 19  122   21   2   -      272   8   -   -      135   2   -   -
Aug. 21  140   14   2   -      357  12   -   -      185   9   -   -
Aug. 24  228   13   -   -        -   -   -   -      374   6   -   -
Aug. 26  158    3   -   -      273   2   2   -      353   3   -   -
Aug. 28  274    4   -   -      417  10   -   -      450   2   -   -
Aug. 31  313    3   -   -      307   2   -   -      531   2   -   -
Sept.  2   78    2   -   -      217   -   -   -       14   -   -   -
*****
    
```

BW = bollworm moth; GSB = green stink bugs;  
 BSB = brown stink bugs; FAW = fall armyworms

From: Shannon Braswell, Agricultural Extension Agent, Stanly County

**Light Trap Data from Stanly County**

```

*****
          # Adult Insects
*****
          Stanly County
          Richfield
*****
Date      CEW    GSB    BSB
*****
July 30   15     2     0
August 3  10     2     0
    
```

August 5	12	0	0
August 7	16	0	0
August 10	24	0	0
August 12	10	1	0
August 14	18	0	0
August 17	43	0	0
August 20	28	0	0
August 24	20	0	0
August 26	11	0	0
August 28	9	0	1

\*\*\*\*\*

CEW = corn earworms; GSB = green stink bugs;  
 BSB = brown stink bugs

From: Andrew Gardner, Agricultural Extension Agent, Union County

**Light Trap Data from Union County**

\*\*\*\*\*

Number of Adult Insects

\*\*\*\*\*

Date	Union Co. North New Salem			Union Co. South Marshville		
	CEW	GSB	BSB	CEW	GSB	BSB
July 24	6	2	0	76	14	0
July 27	25	3	1	75	10	0
July 29	10	2	0	136	10	0
July 31	30	0	0	51	1	0
August 3	13	1	5	60	3	1
August 5	15	2	2	26	2	0
August 7	21	0	0	22	2	0
August 10	21	2	2	75	10	0
August 12	17	3	3	136	10	0
August 14	18	6	0	51	1	0
August 17	15	6	2	128	15	0
August 19	0	0	0	80	12	0
August 21	4	0	0	27	6	0
August 24	4	0	0	60	0	0
August 26	5	1	0	65	0	0
August 28	4	1	1	125	1	0
August 31	6	0	0	70	0	0
September 2	4	1	0	40	0	0
September 4	1	0	0	21	0	0

\*\*\*\*\*

CEW = corn earworms; GSB = green stink bugs;  
 BSB = brown stink bugs

From: Kevin Johnson, Agricultural Extension Agent, Wayne County

**Light Trap Data from Wayne County**

```

*****
                          Number of Adult Insects
*****
                Seven Springs                Goldsboro
*****                *****
Date           GSB  BSB  CEW  HW           GSB  BSB  CEW  HW
*****                *****
July 13        -    -    -    -           5    1    0    1
July 15        -    -    -    -           1    0    4    2
July 17        -    -    -    -           0    0    2    2
July 20        -    -    -    -           6    0    4    9
July 22        -    -    -    -           0    1   13    4
July 24        -    -    -    -           2    0   20    3
July 27        -    -    -    -           3    3   90    -
July 29        -    -    -    -           2    5   87    -
July 31        -    -    -    -           6    4   26    1
August 3       -    -    -    -          10    -   73    -
August 5       -    -    -    -           8    7   35    1
August 10      -    -    -    -           4    -   26    2
August 12      -    -    -    -          10    1   16    -
August 14      -    -    -    -           -    -   54    -
August 17      -    -    -    -           6    6   52    -
August 19      -    -    -    -          12    1   24    -
August 21      -    -    -    -          13    2   38    3
August 24      -    -    -    -           6    2   83    5
August 26      -    -    -    -           7    -  130    1
August 28      -    -    -    -           3    2   93    1
*****

```

GSB = green stink bugs; BSB = brown stink bugs;  
CEW = corn earworms; HW = hornworms

Cooperators: D. M. Price (Seven Springs); Willie Howell (Goldsboro)

From: Norman E. Harrell, Agricultural Extension Agent, Wilson County

**Light Trap Data from Wilson County**

```

*****
                          Number of Adult Insects
*****
                Pender's Xrds  Fountain
*****                *****
Date           CEW  GSB  CEW  GSB
*****                *****
August 3              6    1   14    9
August 5              7    0    8    5
August 7              6    1   12    3
August 10             2    0   12    2
August 12             4    0    9   10

```

August 14	5	0	11	5
August 17	4	0	-	-
August 19	1	0	5	5
August 21	2	0	0	1
August 24	8	0	12	13
August 26	12	0	16	13
August 28	3	1	35	13
August 31	-	-	38	5
September 2	-	-	12	0
September 4	-	-	16	0
September 7	-	-	26	1
*****				

CEW = corn earworms; GSB = green stink bugs

Locations: Pender's Crossroads and Fountain  
Monitored by: Adam Gardner and Barbara Smith

*Recommendations for the use of chemicals are included in this publication as a convenience to the reader. The use of brand names and any mention or listing of commercial products or services in this publication does not imply endorsement by North Carolina State University, North Carolina A&T State University or North Carolina Cooperative Extension nor discrimination against similar products or services not mentioned. Individuals who use chemicals are responsible for ensuring that the intended use complies with current regulations and conforms to the product label. Be sure to obtain current information about usage regulations and examine a current product label before applying any chemical. For assistance, contact an agent of North Carolina Cooperative Extension.*